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PHILCO, Storage Battery Division

Trenton, New Jersey

TELEPHONY

The Journal of the Telephone Industry

February 21, 1942 — Vol. 122, No. 8

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TELEPHONY PUBLISHING CORPORATION
608 S. Dearborn St., Chicago, Ill., U.S.A. Tel. Wabash 8604
SUBSCRIPTION — 10 Cents a Copy; $3 a Year U. S., Cuba and Mexico; $4 Canada; $5 Other Countries

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A. J. STULTS, *Secretary and Western Manager* • H. D. FARGO, *Vice President and Treasurer* •
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Approved Maintenance Practices

By DANIEL SEITZ
Cable Superintendent
York (Pa.) Telephone & Telegraph Co.

[NOTE: *The gas testing of cable is a simple operation which may be performed by any telephone man to permit a rapid and accurate location of trouble. Neither is the necessary equipment expensive nor difficult to maintain. This article and the one to follow explain how this method of testing may be used to advantage in any telephone exchange.* — RAY BLAIN, *Technical Editor.*]

PART XIV. This installment explains the use of nitrogen gas in testing cable and sleeves for trouble, together with several illustrations. The preceding article in this maintenance series appeared in the January 24 issue.

NITROGEN is an odorless, colorless, inert gas which is derived from the air we breathe. This gas is available for cable splicing in cylinders of various sizes best suited to the needs in the field for testing of cable sheath, sleeves and solder work. No telephone company which makes use of lead cable should be without a supply of nitrogen gas and necessary equipment for its use. This is the only method by which positive tests of lead sheath can be made to determine whether or not it is defective.

Fig. 1. Equipment for nitrogen gas pressure testing.

The gas used must be oil-pumped to insure absolute dryness. Water-pumped nitrogen or compressed air should never be used to test cable sheath or solder work because it contains moisture which would have a harmful effect on the insulation of cable. On the other hand, oil-pumped nitrogen gas will actually improve the insulation qualities of paper cable. The essential equipment necessary for applying gas pressure to cable is shown in *Fig. 1.*

The accessories indicated in *Fig. 2* include the following:

(A) Regulator valve and gauge used for measuring and controlling pressure and gas flow.

(B) Hose with regulation air hose chuck for connecting to valve.

(C) Regulation air pressure gauge which reads from 0 to 30 pounds in one-pound graduations.

(D) Regulation low pressure gauge reading from 0 to 30 pounds.

(E) Test clamp used for connecting to individual sleeve, etc. Note this item is not intended as a permanent fitting.

(F) Wrench for connecting regulator assembly to tank and hose.

The pressure gauges (C) and (D) are intended for checking measurements and are to be used when extreme accuracy is not necessary.

Nitrogen gas may be purchased and the cylinders obtained on a loan basis or purchased outright. Purchase of cylinders, in most cases, proves the more desirable arrangement for telephone companies. The large cylinder, as pictured in *Fig. 1*, contains approximately 200 cubic feet of gas at a pressure of 2,000 pounds per square inch; however, this pressure varies with temperature changes.

The regulator assembly is equipped with an adjusting screw which controls the flow of gas being released from the cylinder. This range may vary from one ounce to 50 pounds, as desired. One gauge registers the cubic feet, volume and pressure contained in the cylinder,

Fig. 2. Accessories for use in gas pressure testing.

and the other the pressure at which the gas is being delivered to the hose. The regulator assembly must be purchased by the user and should be carefully handled to avoid damage to the valves and gauges. Two outlets are provided: one for attaching the assembly to the cylinder and the other for a hose connection.

It is now standard practice with some cable manufacturers to gas-test all lead sheath cable during manufacture. This test gas is permitted to remain in the cables for a certain period of time and, when no drop in pressure is noted, the gas is released, the cable sealed and is then ready for delivery. At least one large cable manufacturer, which uses gas for testing all lead sheath cables, offers purchasers the option of having the cable delivered with or without gas pressure at no additional cost.

Fig. 3. Valve location in cable delivered under pressure.

inches from the end of the cable and sufficient gas is admitted to provide a pressure of approximately 10 pounds after equalizing which will require only a few minutes. Both pressure and temperature should be recorded.

If pressure is placed on the cable while it is on the reel, the gas may be left in during the pulling-in operation. When the cable has been in place for at least 24 hours and the pressure remains constant within a nominal variation induced by temperature changes, it is safe to assume that no sheath defects are present. Further readings are not necessary until just before the cable is to be spliced when a pressure reading should be taken and the temperature correction applied to determine whether any appreciable change in pressure has occurred since the initial readings were taken.

If these pressure readings check with the initial readings, it is a definite indication that no sheath defects were caused by the pulling-in operation. Two cables on reels or two lengths already installed may be placed under pressure at one time from a single tank by connecting a two-way outlet between the regulator assembly and the cables to be gas-filled. This procedure will save considerable time when a number of lengths of cable are to be tested.

When nitrogen gas is confined in cables, the pressure variations will be in direct proportion to the temperature changes. Therefore, temperature corrections should be applied to all pressure readings. The table listed in *Fig. 4* shows pressure and temperature variations from –10 to 110 degrees above zero. For example, a cable under seven pounds gas pressure at 60 degrees F. will show a reading of 7.9 pounds at 80 degrees and 4.3 pounds at zero.

After the cable is spliced, individual sleeves may be tested in the following manner. Make a hole near one end with a depth controlled drill or an awl, place a pressure testing clamp over the hole, connect the hose from the cylinder and admit gas. When a pressure testing clamp is not available, a modified tire valve may be used by removing the inside valve and soldering to the lead sleeve. The inside valve need not be used when making individual sleeve tests. Admit gas to the sleeve under test

	Temperature of Gas Degrees Fahrenheit												
Pounds Pressure	–10	0	10	20	30	40	50	60	70	80	90	100	110
	2.2	2.6	3.0	3.4	3.8	4.2	4.6	5.0	5.4	5.8	6.2	6.6	7.0
	3.0	3.4	3.9	4.3	4.7	5.1	5.6	6.0	6.4	6.8	7.3	7.7	8.6
	3.9	4.3	4.8	5.2	5.7	6.1	6.5	7.0	7.5	7.9	8.3	8.8	9.2
	4.8	5.2	5.7	6.1	6.6	7.1	7.5	8.0	8.5	8.9	9.4	9.8	10.3
	5.6	6.1	6.6	7.1	7.5	8.0	8.5	9.0	9.5	10.0	10.5	10.9	11.4
	6.5	6.9	7.5	8.0	8.5	8.9	9.5	10.0	10.5	11.0	11.5	12.0	12.5
	7.3	7.9	8.4	8.9	9.4	10.0	10.5	11.0	11.5	12.0	12.6	13.1	13.6
	8.2	8.7	9.3	9.8	10.4	10.9	11.5	12.0	12.5	13.1	13.6	14.2	14.7

Fig. 4. Table showing gas pressure and temperature variations in cable testing.

When a gas-filled cable—either underground or aerial—is installed and before it is spliced it should be tested with a gauge. Then, if no drop in pressure is noted after an elapse of 48 hours, it is certain that the cable was not damaged during shipment or installation.

When cable is supplied gas-filled, modified tire valves are installed in the ends as shown in *Fig. 3* in order that it may be pulled into ducts or through rings on the strand without disturbing the pressure until it is ready to be spliced. It should be understood that cable shipped and installed under pressure cannot be spliced without releasing the gas. Cable supplied without gas may be tested by the purchaser for sheath defects by admitting gas to the cable while on the reel or after it is pulled in.

Gas pressure testing of the cable while it is on the reel is recommended as this usually proves more convenient and effective. However, any method may be used just so that a valve is placed not more than 12

Fig. 5. Disarranged cables and splices on account of enlarging manhole. Note fibre ducts are not removed until brick construction work is completed.

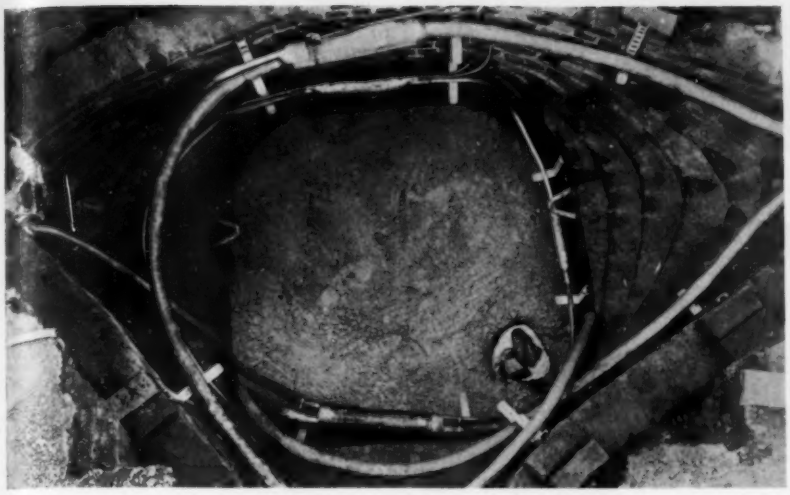


Fig. 6. Cables arranged on racks in enlarged manhole.

until the gauge on the regulator registers approximately five pounds.

When making this test, it is not necessary to have the distant end of the cable in either direction sealed as the core will restrict the flow of gas sufficiently to permit pressure to be built up in the sleeve. When the pressure inside the sleeve has reached approximately five pounds, soap suds should be applied to the outer surface with a brush. The gas should be admitted continually during this operation and a careful watch maintained for the formation of bubbles which will indicate a leak.

If no leaks are found, remove the test clamp or valve, plug up the hole used to admit the gas with a brass screw type plug provided for the purpose, and float over with solder. To realize maximum benefits from pressure testing, the few necessary operations must be performed with care. This is especially true when applying soap suds and checking readings for a drop in pressure as lack of care may result in cable failures and the gas-testing effort will be wasted.

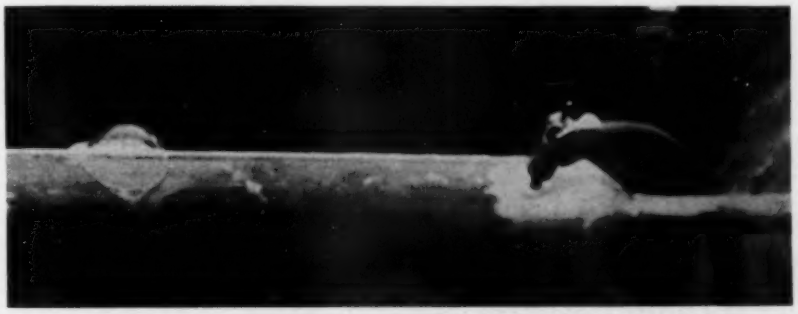
The gas-testing of individual sleeves is particularly useful in manholes where construction work or the moving of splices may have caused sheath breaks or solder defects which cannot be detected by visual inspection. Construction work necessary to enlarge the manhole shown in *Fig. 5* left the cables without proper support and *Fig. 6* indicates how they were re-racked after the job was completed. This operation necessitated considerable reshaping of the bends and moving of the splices after completion of the job.

In this particular case, each splice was placed under gas pressure and soap suds applied not only to the sleeves but to the entire length of the exposed cables within the manhole. Sheath breaks caused by reversing some of the short bends were found and the defects repaired by soldering which eliminated subsequent cable failures. In locations where two or more cables are interconnected, as in *Fig. 6*, the gas may be applied at one point and all the cables and sleeves tested in one operation.

Visible damage, such as kinks or wrinkles in the lead sheath caused by abrupt bends, may be checked for leaks by attaching a test clamp or valve near the suspected kink and applying gas in the same manner as used for testing individual sleeves. These kinks may usually be repaired economically by wiping solder over the damaged spot or by the arc-welding method.

The arc method is especially adapted for the use of companies which do not have qualified personnel available to wipe splices. However, this method should never be used in manholes where there is the slightest danger that explosive gas may be present. When a cable is known to have some moisture faults and any suspected spots show leaks with the soap-suds test, they should not be soldered until all the moisture that might be present has been removed. If this is not done, the heat required to solder will spread the moisture so that the fault will be difficult to clear.

(Another instalment soon)



Gas testing solder work along sleeve seam; note soap bubble (left) caused by defect.

Best Story of the Week—What's Yours?

Boulder, Colo., is laughing over two local men who, thinking they were telephoning the fire department to report a fire, discovered when the fire apparatus failed to arrive, that each had picked up a telephone on an extension line and telephoned the other!

It seems that these two men—one a customer and the other an employe of a restaurant—at the same instant noticed a shed in back of the restaurant burst into flames. Each saw a telephone, rushed to it.

"Fire department!" shouted one, hearing a click as he lifted the receiver, and not stopping for Central's "Number?"

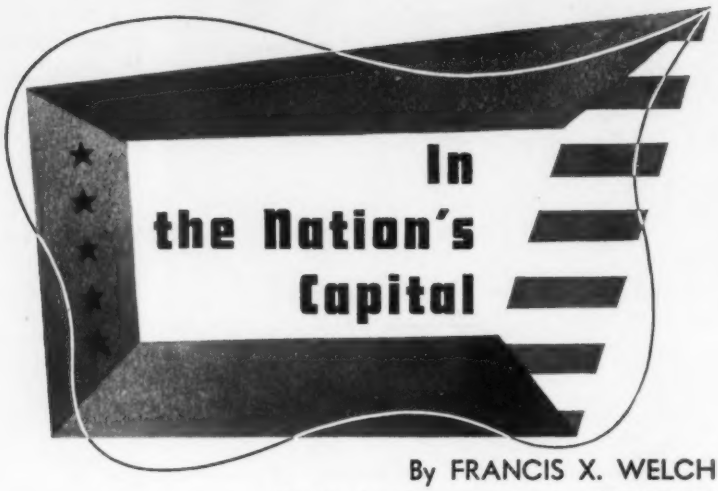
"Yes!" responded the other.

"Fire in rear of Martin's Sandwich Shop!" reported the first.

They both hung up, their duty done. But no fire-truck came sirening. Volunteers put out the fire.

"That's odd," they mused. "We *both* reported the fire."

And then—the excitement over, minds functioning normally once more—it dawned on them what had happened.



By FRANCIS X. WELCH
Washington Correspondent for TELEPHONY

Radio industry slated to be entirely on a war basis soon, which means cessation of civilian radio production. . . . Does not set precedent for telephone manufacturers as they already operate almost 100 per cent for defense. . . . Utilities can get recapped or retreaded tires for passenger cars.

FOR THE TELEPHONE industry there is some food for thought in what recently happened to the radio manufacturing industry. Representatives of 55 radio manufacturers were told on February 12 by R. R. Guthrie, assistant chief of the WPB Division of Industry Branches, that the industry simply must quit making radios for civilian use. It has to go entirely on a war basis or go out of business.

In other words, radio manufacturers follow the automobile manufacturers into total conversion to the war effort. Unless the major facilities of the radio manufacturing industry have been converted to war production within the next three or four months, it may be necessary for the War Production Board (Donald Nelson) *to transfer the labor and equipment of the unconverted plants to industries where they will be used for the manufacture of munitions and related production.*

Companies which cannot use their facilities to produce direct war-equipment (radios, Signal Corps devices, detectors, and similar equipment), needed in "enormous volume" for the armed forces, are expected to turn out "other products." Mr. Guthrie said:

"If, three or four months from now, conversion to war products is still not accomplished, it will be impossible to assume any longer that some kind of conversion of the type of organization of plant, equipment, labor and management which constitutes a radio factory is feasible. It would be a frightful loss, a great cost to the nation, if this were to happen, because we should then have to take steps to break down the organization of the unconverted plants, and shift their labor and equipment to other parts of the economy where they could be mobilized for war production."

You may recall that civilian output of the radio manufacturing industry was only recently cut 40 per cent below 1941 production. Now, it appears that radio manufacturers will be ordered to suspend production of all civilian sets along about April 22 — expiration date of the present limitation order — although no definite deadline was officially set. There will be no exceptions made. Little companies with small shops, as well as the bigger concerns, will have to convert to war effort or fold up. There will be no material for them.

Some radio manufacturers had been under the impression that provision would be made for at least one major manufacturer to put out a "victory set" — standardized for the duration and produced in limited quantities—in which all the manufacturers would share some benefits while going ahead with their own war work. That is the plan being considered for refrigerators and other appliances which will have to shut down pretty soon.

But apparently there is to be no "victory set." The manufacture of new radio sets is a thing of the past —until the war is over. (Of course, repair shops for reconditioning and maintaining radio sets will continue and even be encouraged as a matter of civilian morale.)

What is behind this drastic step? Clearly it points to a conviction on the part of WPB that America has enough radio receiving sets already in operation or on the shelves of the retailers or in the warehouses of the distributors. That is to say, "enough" to get the public over the emergency period without serious inconvenience.

There will be sacrifices, of course. Within six months from the day the stop order becomes effective, you will be paying as much, if not more, for a comparable used or reconditioned set as you now have to pay for a new model—unless Leon Henderson intervenes with a price ceiling. And if he does intervene, we will have to come to the rationing of the sale of radio sets through OPA.

Furthermore, the broadcasting end of the radio business has not been overlooked. The FCC, acting on recommendation from the DCB,

has already given notice that it will not license the construction of any new transmitting facilities or major expansion of existing radio transmitting facilities, except under circumstances clearly associated with the war effort — which probably means, on orders from the Army and Navy. The DCB has made a similar recommendation to the WPB Communications Branch which is in a position to control the allocation of materials for the radio broadcasting industry.

* * *

So much for the radio business. What does this portend for the telephone business, if anything? May we expect on the basis of this precedent that the telephone manufacturing industry will eventually be told that it will have to cease making equipment for civilian use? The answer is unquestionably "No." But the reason why it is "No" may be different from what you might expect.

You might expect, for example, that the telephone manufacturing industry will be permitted to go on making telephone equipment for civilian use, because it is an essential civilian need. But that is what the radio manufacturers used to think. They had been assured time and again that radio was an essential civilian need—indeed one which was vital not only for the preservation of morale but also to carry out the functions of Civilian Defense—such as the dissemination of air-raid warnings, important news, and government announcements.

But, again, WPB, after taking stock of the number of radio receiving sets in existence, has decided that there are enough of them to insure adequate public reception of necessary broadcasting information for the rest of the emergency.

When we turn to the telephone manufacturing field, a slightly different situation is apparent. Many telephone companies do not have enough facilities to meet anticipated demands. And certainly there is no surplus, even on a national average. Nevertheless, WPB is getting that "tough" about cutting out all activity not connected with the war effort that it probably would not hesitate to say that the American people already have enough telephone service — for the duration — if the question were as simple as that. Such a move would mean the immediate cessation of new extensions and eventually the systematic regrading of existing telephone service on a basis of strict rationing.

Such a result may eventually come about anyhow. But it will not come because of an absolute STOP-WORK order from WPB to the telephone manufacturers for civilian facilities. No, the reason why WPB will probably not take this step in the field of telephone manufacturing is because telephone manufacturers are *already* so much sewed up with defense orders. They are already so much sewed up that WPB will not begrudge the comparatively small amount of strictly civilian type production the telephone manufacturers can sandwich between their defense orders.

Furthermore, WPB recognizes that the continued operation of the telephone manufacturing industry in what might be classified as civilian type business is necessary for the maintenance and upkeep of the nation's telephone service.

In other words, the repair and maintenance of radio receiving sets can be turned over to the little street corner shops where a radio man with a small amount of repair materials can keep America's radio sets performing for a long while. The repair and maintenance of America's telephone system is a far more complicated matter. It means miles of wire, varieties of specialized equipment, switchboards, automatic dial equipment, subscriber station equipment. It cannot be continued in service indefinitely on the simple basis of a neighborhood repair shop.

Finally, there can be no clear-cut distinction between civilian and defense use of telephone service as there can be made in the usage of radio receiving sets. In the latter case, it is fairly clear that unless a radio receiving set is needed for use by the government or one of its defense agencies, it is a civilian use. But who in the world can distinguish between the millions who daily use the telephone? Not only is the segregation virtually impossible but the necessity for some form of telephone communication would involve a further distinction between "essential use" and "non-essential civilian use."

The reason why your correspondent has undertaken to express assurances that no "stop work" order will be issued against the telephone manufacturing industry in the near future is because it is quite clear that many are worried about it. Immediately after the Guthrie speech and even before it this writer had received inquiries from men in both the operating and manufacturing branches of the telephone industry seeking light along this line. Your correspondent has canvassed the situation as well as he can with those who are in the best position to know and are able to talk about it. The answer is still "no."

* * *

This does not mean, of course, that telephone manufacturers do not face a gradual curtailment of their activities for the lack of materials —aside from what can be definitely classified as "war work." But that is quite a different matter. It is a matter which has already led to the consideration of a relatively mild rationing order which the WPB Communications Branch is reported to be considering. Such an order may be issued in the near future.

As stated above, most telephone manufacturers already have more than enough "war work" to keep them going on some kind of a basis. Indeed some of them have so much "war work" that they have for a long time experienced difficulty in filling orders from operating companies, even under priority ratings, with the usual degree of promptness. *The fact remains that as long as a telephone manufacturer can find the time and the materials—through a priority rating or otherwise—to fill the order of an operating telephone company, the WPB is not going to interfere.* Unless the situation changes drastically, your correspondent is willing to underwrite that forecast for at least the remainder of the year 1942.

* * *

There is another field of rationing in which a number of public utility companies are interested right now —automobile tires. When the OPA announced its first regulation for rationing of new tires, only the trucks, not the passenger cars, of public utilities were allowed certificates of eligibility to buy new tires. The Washington representative for the USITA, Clyde S. Bailey, has been quite diligent in attempting to obtain a classification of this regulation for the telephone industry. And it may well be that as a result of Mr. Bailey's representations the OPA has been somewhat "softened up."

True, Mr. Bailey was informed by the OPA that the tire rationing regulations mean exactly what they say—trucks and not passenger cars —under any circumstances. *Nevertheless, it is noteworthy that when OPA put out its new rationing regu-*

(Please turn to page 33)

TWO SCHOOLS TRAIN MARINES

For Telephone Work

By SGT. R. W. NICHOLSON,
U. S. Marine Corps

WITH THE SPEED of modern warfare ever on the increase, the problem of establishing and maintaining effective lines of communication becomes increasingly difficult. Of the various types of communication, the field telephone, in the opinion of military men, is probably the most important.

Keeping pace with all the latest changes in tactics, the comparatively small but versatile U. S. Marine Corps has two schools turning out qualified telephone men at top speed. One school is at the Marine Barracks, Quantico, Va., and the other is at the Marine Corps Base, San Diego, Calif.

Students for the two field telephone schools are selected from among the enlisted men who have had their basic training as marines. Instruction is given by marine personnel.

Instruction begins with fundamentals. Students are not expected to have had previous experience in the field of communication. All steps in theory and operation are covered in the course so that by the time students graduate they are thoroughly familiar with latest types of equipment and with modern field methods.

Preliminary work involves the study of elementary physics, mathematics, and electricity; lessons in nomenclature; and operation of permanent installations of field switchboards and telephones.

After they have had this background work, students take regular equipment into the field and make actual installations. Careful supervision is given at every step, and installations are made over and over until students are able to assemble and break down an entire communication center in complete darkness. This is important inasmuch as troop movements are often undertaken at night, and the telephone set-up has to be made as soon as a headquarters is decided upon.

Marines work on a practice pole as part of their training with permanent installations of equipment before they move out for actual field practice.

When students are proficient in this phase of study, they are led out into the field for operation under simulated wartime conditions. Switchboards, telephones, telegraph sets, and wire reels are loaded onto little two-wheeled hand carts, and the class starts off across country. The officer-in-charge suddenly signals a halt and gives the command to set up the communications center. While one of the instructors holds a stop watch on the operation, the marines jump to unload the carts, breaking out the equipment so fast it seems to grow before one's eyes.

Simulating the existence of other units, they install the necessary telephones for a complete battalion headquarters. The commanding officer's telephone is in operation in one minute flat, while two men with hand reels dash off to cut in a telephone at the nearest message center.

(Concluded on page 22)

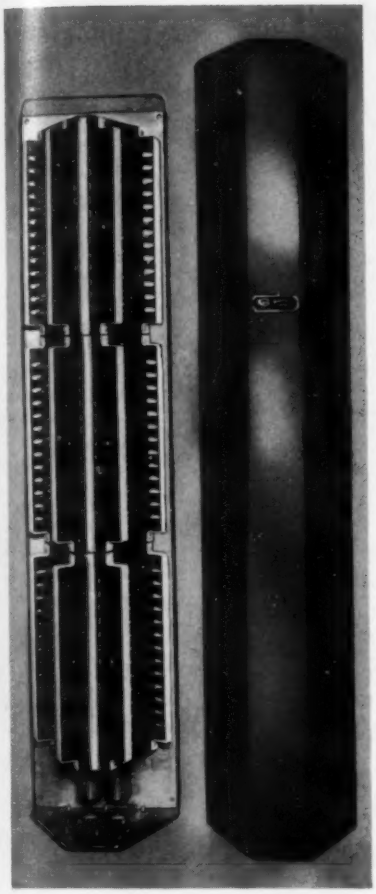
Hawaiian Story to Appear in California Newspaper

As this week's issue went to press a telegram was received from A. Wardman, president of the Consolidated Telephone Co., Whittier, Calif., requesting permission to reprint in the local newspaper the article by Dick Haller in last week's issue entitled "Japs Fail to Interrupt Hawaiian Telephone Service." Mr. Wardman's wire read:

"Can we use story by Dick Haller in our local paper by giving the author and TELEPHONY credit for it? We congratulate both of you on this well-written article."

Of course, TELEPHONY was pleased to grant such permission to reprint this special and exclusive story on Hawaiian telephone communication. It may be that telephone managers throughout the country will want to arrange with their local newspapers to publish this article, in whole or in part. Such action will be quite satisfactory providing proper credit is given both to the author and to TELEPHONY — and, of course, we would be interested in receiving copies of any newspapers in which such stories appear.

COSTS LESS THAN HALF . . . TAKES THIRD THE SPACE

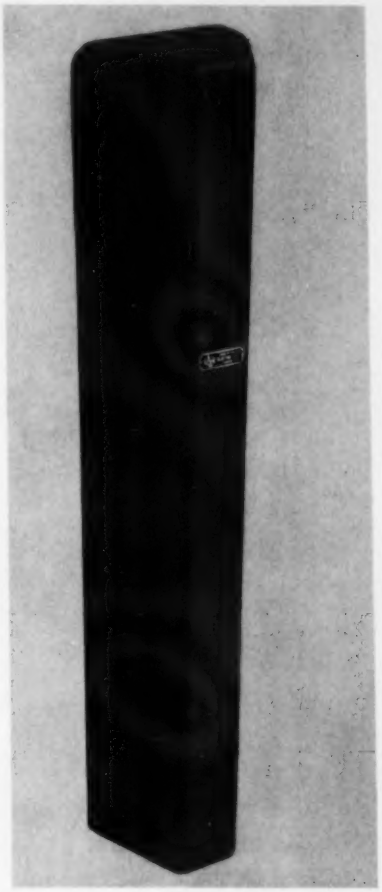


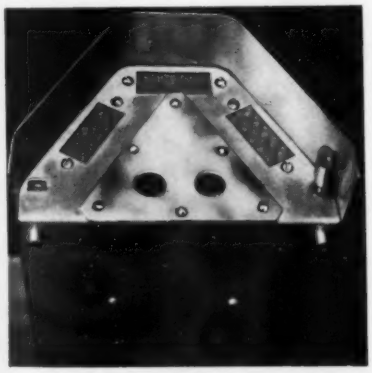
NEW and truly revolutionary the Terminal Vault for Uniflex requires only one-third space required by ordinary old-style terminals of the same capacity.

The new Terminal Vault, provides 100% working accessibility to the Uniflex units which it houses because its cover section is completely removable and its wall mounting back section has no projecting sides to limit the work space.

The ingenious one piece design of this new unit eliminating doors, latches and hinges makes possible new economies in its manufacture so that its cost is less than half of that of ordinary terminal units.

Other outstanding features of the Uniflex Terminal Vault are its streamlined appearance; durably finished one piece welded cover section; unique concealed lock; insulating individual drop knockouts; close fitting dust proof cable entrances — these and many other features combine to make the Uniflex Cable Vault another outstanding Cook contribution to greater telephone efficiency and economy.





Upper left: three Uniflex units of 156 pair (78 in and 78 out) capacity mounted in new Uniflex Terminal Vault. Upper right: the compact, streamlined vault installed. Lower left: detail of base showing unique concealed lock, close fitting cable entrances and insulating individual drop knockouts.

★ ★ ★ SPACE CHART ★ ★ ★

Type	Cable Capacity	Space required	
		For cabinet	Per Pair
Ordinary Single Face Plate Terminal	156 pairs	5.42 cu. ft.	.04 cu. ft.
Uniflex in Locker Type Cabinet	156 pairs	4.32 cu. ft.	.03 cu. ft.
Uniflex in Cable Vault	156 pairs	1.35 cu. ft.	.009 cu. ft.

Uniflex Terminal Vault takes less than one-third the space, provides greater accessibility, costs less than half.

COOK

COOK ELECTRIC COMPANY
2700 SOUTHPORT AVENUE
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Stronger Fra

EXTRA SWITCH AND BANK MOUNTING SPACE
ALL FRAME WIRING INSTALLED AND JACK-ENDED AT FACTORY
EXTRA SWITCH MOUNTING SPACE
SPACE AVAILABLE FOR ADDITIONAL SWITCH SHELF

Strowger Flexibility –

one of the important reasons for its world-wide adoption

Strowger Automatic equipment has achieved world-wide use in every type of switching application largely because of the basic flexibility of its fundamental design.

Today, this flexibility is permitting existing equipment to meet new conditions and unforeseen changes quickly, easily and economically.

Users are finding that when new requirements suddenly present themselves, the interchangeable, easily-handled Strowger switching units are easily slipped on or off frames as occasion demands, and even shifted from one exchange to another, if required. The experience of Strowger exchange owners has also been that when expansion is justified by war requirements, it is quickly and economically accomplished — without interruption to service or exorbitant installation costs —merely by adding more frames and more switches.

These and many other important advantages of Strowger Automatic operation have been found to stem directly from its fundamental "small unit" design, which distinguishes this system and accounts in great measure for its enviable reputation and wide-spread adoption.

AUTOMATIC ELECTRIC

ORIGINATORS AND DEVELOPERS OF STROWGER STEP-BY STEP MACHINE SWITCHING AUTOMATIC DIAL SYSTEMS

MAKERS OF TELEPHONE, SIGNALING AND COMMUNICATION APPARATUS
ELECTRICAL ENGINEERS, DESIGNERS AND CONSULTANTS

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(Concluded from page 18)

A ground stake is driven home, and telegraph sets are simplexed through the switchboard. A wire to the rear is tied in, and communication thus is established with higher units of command behind the lines assumed in the exercise.

This installation is maintained in operation for a few minutes. Then, simulating the receipt of orders to move forward, the officer-in-charge with half the students moves out. Contact with the center just established is maintained by laying a wire from a reel cart as the party goes forward. When the officer sights a likely place for a new headquarters, necessary commands are given and a new set-up is made by the students. As soon as the forward unit is in operation, the first section breaks down its switchboard and reels in the wire to its telephones. It then splices in the wire from the forward unit to the higher units in the rear and moves up to the new position.

With the communications section moving in this way, commanding officers in the front lines can maintain almost uninterrupted communication with all forces in the field.

The next phase of study is in troubleshooting. With a switchboard in operation, the instructor will put various telephones out of order by cutting wires in inconspicuous places or by disordering the circuit. Careful check is made of the speed and accuracy with which the students find and repair the trouble.

Taking the field in exercises simulating war conditions, students lay a wire connecting them to headquarters in the rear.

Training in one of the field telephone schools of the Marine Corps gives a man valuable experience he can use later in civilian life.

"The men picked to take this course," stated Second Lieutenant Clair F. Achenback, in command of the school at San Diego, "are all of better-than-average intelligence and, with the schooling they get, they should have no trouble in continuing in telephone maintenance as a profession after the present emergency is over."

In addition to the field telephone schools, the Marine Corps conducts 33 other vocational training centers where young men are taught to maintain and operate increasingly complicated machines of modern war. In practically all cases the skills developed will carry over to help the men after they return to civilian life.

The Marine Corps is the oldest of the military services in the United States, having been established on November 10, 1775 by the Second Continental Congress. Marines have fought in every war in which the United States has been involved and in countless minor hostilities that are not classed as wars. Record of their successes in military undertakings is probably without equal even though in many cases they have been faced by greatly superior forces.

The functions of the Marine Corps are (1) to furnish detachments for ships of the Navy; (2) to maintain the Fleet Marine Force for instant action in the event of a major movement of the Navy in which land operations are involved; (3) to protect naval property, shore stations, ship yards, bases, etc.; (4) to protect American lives and interests in disturbed areas; and (5) to act as special guards for the President and Government of the United States.

Most of the graduates of the field telephone schools are assigned to the Fleet Marine Force.

The field switchboard is set up under the watchful supervision of one of the instructors. A telephone is placed in operation in one minute flat.

Censorship Rules For All Communications Issued

The Office of Censorship on February 17 issued regulations governing international communication by telephone, cable, and radio.

Fifteen classes of information are banned from international communications. No telephone connection may be made with any enemy controlled area, and cable messages to or from such areas are limited to those sent or received by the government of one of the American republics, unless a special license has been granted by the censorship director.

Prior to the completion of an international telephone call, the persons involved must be fully identified. Calls must be person to person, except in certain cases.

The English, French, Spanish, and Portuguese languages will be permitted in all types of communication.

Cable and radio messages must be fully addressed, except where cable addresses have been approved, and must be fully signed.

Messages without texts—that is, just an address and a signature—are forbidden, and single word messages will be subject to special scrutiny.

Legitimate terms in professions and trades may be acceptable, but the censorship office warned against using words or phrases susceptible to double meanings.

Private international communications must contain no references to vessels and aircraft, their cargo, or movements; weapons, supplies, and equipment; proposed or existing plants, docks, dams, and other structures, or processes and methods; civil, military, industrial, financial, or economic plans of this country or other enemies of the axis; the employment of civil defense units, reports on production or supplies; weather conditions, past, present, or forecast; the effect of enemy operations or the operations of our own forces; prisoners of war; criticism of equipment, condition or morale of the armed forces; or any data or matter which might give aid or comfort to the enemy.

▼ ▼

Changes at La Plata, Mo.

CLARK T. PROUD, who has been in the employ of the Mid-West Telephone Co., Gilliam, Mo., has accepted a position as wire chief for the La Plata (Mo.) Telephone Co. The La Plata company is owned and operated by MR. and MRS. E. O. TURNER.

DEWEY NIXON, former wire chief for the La Plata company, has accepted a similar position with the Missouri Union Telephone Co., Wentzville, Mo.

SAVE COPPER KEEP 'EM ROLLING

SAVE COPPER
KEEP 'EM ROLLING
with GAR WOOD
WIRE RECLAIMING REELS

The Gar Wood Wire Reclaiming Winch Unit reclaims all sizes of copper and iron telephone wire from poles. The Winch saves in the cost of removal and, also, in the cost of maintenance since wire removed is ready for immediate re-use (the coiled wire is nearly as perfect as an original factory coil). Under present conditions this conservation of vital material is essential to National Defense.

GAR WOOD MODEL 102 WIRE RECLAIMING WINCH UNIT

SAVES TIME AND MONEY

The Gar Wood Reclaiming Winch, shown above, will coil 10 wires each a mile long, at the same time and at a speed of 150 feet per minute.

SAVES MATERIAL

Gar Wood Reclaiming Winch requires one operator and a helper. The chauffeur alone operates the Winch, the helper assists in stripping the reels. (Left) Removing Reel with Coiled Wire. (Right) Cone-shaped Reel Drops Coil Quickly.

Whenever small quantities of wire are to be reclaimed, the Gar Wood 5-wire Detachable Reclaiming Reel Unit can be slipped on the extended shaft of the standard Winch—usually on a Utillity truck. This unit is installed on the curb side. Note the guide bar clamped to the bumper. One reel with coil of wire weighs 112 lbs. (reel 25 lbs., ½ mile of .104 wire, 87 lbs). The spider weighs 135 lbs.—easy for two men to handle.

Write or ask for fully illustrated Gar Wood Wire-Reclaiming Reel BULLETIN W144

GAR WOOD INDUSTRIES, Inc.
WINCH DIVISION
7924 Riopelle Street ★ DETROIT, MICHIGAN
World's Largest Manufacturer of Truck Winches

A SMALL AIR dryer about the size of a shoe polish box is now available and may be used to prevent the accumulation of moisture inside electrical instruments when operated in damp locations. This screen type container is filled with silica gel. When the blue color under the inspection window has faded to a pale pink, heat in an oven at 300 degrees F. for three hours to restore the blue color and the moisture-absorbing qualities of the silica gel. The dryer is then ready for reuse.

* * *

I enjoyed a talk last week with H. C. Morris, factory representative, D. W. Onan & Sons Co., of Minneapolis, manufacturers of gas-engine-driven generating plants. This company is familiar with the needs of emergency gas-engine-driven generators to be used for telephone battery charging during failures of the commercial power supply. Many telephone companies are now installing this standby equipment and Mr. Morris stated that his company, although working at top speed and capacity, has been able to fill all orders with a minimum of delay.

* * *

A memorandum on municipal signaling systems, including specifications for emergency electrical power equipment, prepared by the Defense Communications Board, Office of Civilian Defense, should prove of interest to Independent telephone companies. This pamphlet is for sale by the Superintendent of Documents, Washington, D. C., at 10 cents per copy.

* * *

A letter was received from John E. Bostrum of Buffalo, N. Y., with reference to inspection data on standing poles. Mr. Bostrum is particularly interested in the inspection of untreated poles. He wants information as to whether or not the remaining good wood in the ground zone of standing poles is adequate to carry the load of the line.

We shall be pleased to hear from any of our readers who may have had actual experience with inspections of this nature.

* * *

Maj. W. G. Thomas, formerly an engineer in the chief engineer's office of the Southern New England Telephone Co., at New Haven, Conn., is now on active duty in the plant division, Office of the Chief Signal Officer, Washington, D. C. Major Thomas participated in World War No. I as a member of the 401st Field Telegraph Battalion which was recruited from employes of the New England Telephone & Telegraph Co.

* * *

Had a telephone conversation recently with Clyde Bailey, vice president and Washington representative for the United States Independent Telephone Association. Clyde has been ill for some time; however, we are glad to report that he has now fully recovered and is "up and at 'em again" with his usual vim, vigor and a "V" for victory.

* * *

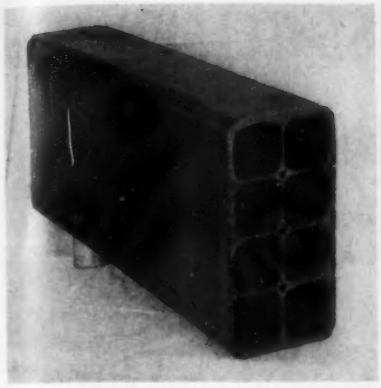
Maj. F. A. Dowd is now on duty in the traffic division of the Office of the Chief Signal Officer in Washington, D. C. Major Dowd comes from the Dowd Associates, Inc., which company maintains offices in New York, Detroit, and Boston and are communication consultants for such firms as Nash-Kelvinator Corp., Briggs Manufacturing Co., Standard Brands, Schovel Manufacturing Co. and Borden's Milk Co.

Hawaii Article Featured In Chicago Newspaper

The exclusive story on Hawaiian communications, "Japs Fail to Interrupt Hawaiian Telephone Service," by Dick Haller, was given prominent mention on the financial page of the February 13 issue of *The Chicago Daily News* in an article written by Herman Gastrell Seely. As far as is known, Mr. Haller's article is the first complete report of the effect of the war on communications in the Hawaiian Islands.

This is the second time within a month that articles in TELEPHONY have been featured in this Chicago newspaper. In January, Louis Pitcher's article on "Steps in Federal Control of Telephones in World War I" was featured on the financial page, which resulted in several calls to TELEPHONY for further information on Mr. Pitcher's article.

MULTIPLE CLAY CONDUIT: There is available eight-way, multiple clay conduit in three-foot lengths which should prove especially useful in the rapidly-expanding telephone indus-

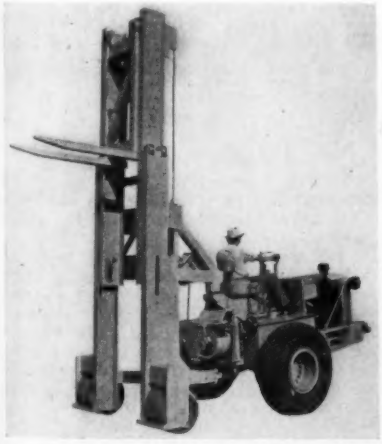


Eight-way, multiple clay conduit in three-foot lengths permits maximum accessibility of cable and the use of smaller manholes.

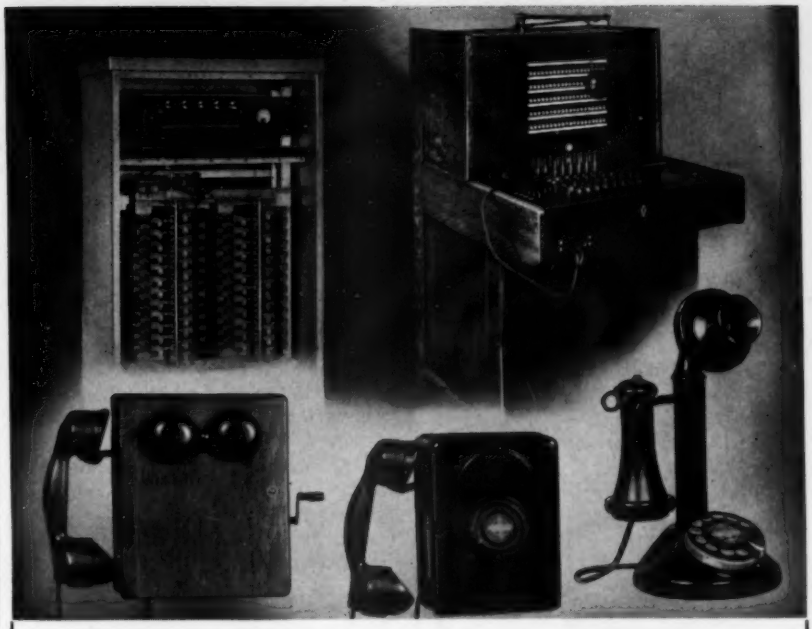
try. This type of conduit may often be used to advantage instead of nine-way conduit for manhole entrances as it permits racking cables in single tiers, one on each side, which eliminates congestion and crossing of cables. This arrangement also provides maximum accessibility and permits the use of smaller manholes.

This new conduit will also prove desirable in crossing over bridges or viaducts or in passing between underground obstructions by laying the conduit flat, as it provides more duct holes per piece with the least overall height. This conduit may also be used to advantage in building duct banks two ducts wide and permits a more perfect alignment of the duct holes. In other words, it may be used in lieu of two lengths of four-way multiple clay conduit.

* * *



This photograph indicates a new tool which may be used to advantage by some telephone companies in the moving of large, heavy objects such as reels of cable, poles or special machinery. The prime mover also elevates and lowers the load as desired. The material carrying rack may be modified as desired to handle special objects.



WHAT IS "AR" REBUILDING SERVICE?

AR Rebuilding Service has its own completely equipped factory facilities. Each department is staffed by skilled, experienced telephone craftsmen. Old apparatus turned in is completely disassembled, and each part rebuilt, modernized and refinished as a separate item by latest factory methods. After passing rigorous performance tests, such parts are put in stock, from which AR rebuilt equipment is subsequently produced. This is why the final AR product looks like new, performs like new and delivers a full lifetime of excellent service. . . . Write for prices and full information.

THE MARK OF QUALITY IN REBUILDING SERVICE

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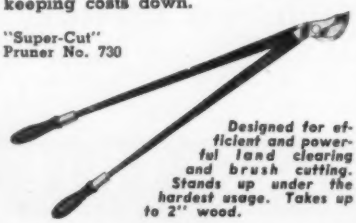
POLE AND PRUNING SAWS
HAND PRUNERS — CABLE CUTTERS

— are preferred because they have always measured up to the job of keeping costs down.

"Super-Cut" Pruner No. 730



Designed for efficient and powerful land clearing and brush cutting. Stands up under the hardest usage. Takes up to 2" wood.

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102 Main St., Oakville, Conn.

SENATORS PRAISE TELEPHONE SERVICE IN DEBATE

ON JANUARY 19 the United States Senate passed, after a relatively short debate, the so-called Lea bill amending Section 606 of the Communications Act so as to allow the federal government to seize and control wire communication facilities during the period of the war and for six months thereafter unless sooner terminated by Congress.

The measure was passed by the Senate in exactly the form previously passed by the House of Representatives, where it had been introduced by Representative Clarence F. Lea, chairman of the House Interstate and Foreign Commerce Committee. (See (TELEPHONY, December 27, p. 13, for text of amendment.)

During the Senate debate on the measure the telephone industry was paid glowing tribute for the quality of service it is rendering and there were statements to the effect that if the government took control of the industry it is certain that the present quality of telephone service would be lowered.

Senator Vandenberg of Michigan asked Senator Wheeler of Montana who, as chairman of the Senate Interstate Commerce Committee, sponsored the bill in the Senate, if the measure would authorize the President to take over complete control of the nation's wire communications and operate them under government control. Senator Wheeler replied:

"Oh, yes; during the period of the emergency and for six months thereafter; but it was the understanding of the committee, which is borne out, I think, by the statement of Mr. Fly (chairman of the FCC), that the intent is to take over only the use and control of the facilities.

"The question was asked before the committee whether it was the intention to leave in control those who were in charge of the companies. My understanding is that they are to be left in control, unless for some reason, it might become necessary to dispense with the services of some particular individual.

"In all fairness to the telephone and telegraph companies, I wish to say that they have shown every indication of intention to cooperate with the government in every way in our national defense. There has not been any question at all about their cooperating with the government. They have shown and have stated that they were perfectly willing to do anything the government requested, and that they had no objection to what was proposed, because they realized that it might be necessary for the government, under emergency conditions, to take over the control of the companies during the period of emergency."

Senator Vandenberg conceded that the emergency justified the creation of such extraordinary control but added that he had such a "profound respect for the efficiency with which the telephone systems of the country are operated" that he did not like to see the physical management of the properties subordinated to government control because "it would be a step backward."

Senator Wheeler responded to this suggestion as follows:

"As the Senator may recall, I introduced a resolution providing for an investigation of the telegraph companies. I am frank to say to the Senator that we have in the United States probably the most efficient telephone system to be found anywhere in the world, not saying anything about the cost of the service. Any Senator who has visited any other country and has had to use a telephone will recognize that statement to be correct.

"In my talks with Mr. Fly, and also in the testimony before the committee, it did not appear there was any present intention of taking over the companies. The thought was that in the event it became absolutely necessary to take over control of the companies, we should have some such legislation on the statute books as is here proposed."

After Senator Wheeler had stressed the fact that the telephone and telegraph companies had not opposed enactment of the bill, Senator Vandenberg of Michigan stated:

"The Senator's last statement might carry the implication that some of the questions which have been asked have been asked in the interest of the companies. I have no interest whatever in the companies, but I have a great deal of interest in the quality of telephone service this country has. I can get the wrong number often enough under private management; I should hate to have to tackle it under public management. I do not want to wake up and discover that the great telephone systems of this country have become government monopolies as a result of a relatively inoffensive piece of legislation."

Senator Wheeler concurred in the Michigan senator's hostility toward government ownership and operation of communication facilities as a per-

manent policy. Senator Wheeler stated in this respect:

"Let me say to the Senator that I should hate to see the radio taken over by the government of the United States. I think it would be one of the worst things that could possibly happen to the United States if the radio in this country were owned by the government as it is in Germany and as it is in Russia, and as it is in Italy, or as it is in England, because everybody recognizes that while the radio in England is government-owned, the English have a far poorer service than we have here in the United States. I have been a critic of the radio broadcasting companies on numerous occasions; but everything is relative, and, with all due respect to them, when we compare their service with the service that is given in other countries, the service is better over here.

"But if the radio were owned by the government, of course we should have the government saying who could speak over the radio, and the government would absorb the time with nothing but propaganda, as is done in Germany and in Italy and in Russia.

"For the same reason I believe that if the government were to take over the telephone companies, and they were run by some bureau in Washington, we probably should have more inefficient telephone service than we have today. I do not think there is any doubt about it. I think it is one of the things that would be difficult for the government to handle and give good service all over the country.

"But we have the radio law on the statute books, and we have had the threat of war, and there has not been any attempt to take over the radio. If there had been any attempt to take it over because of the threat of war I am sure I would have been one of the first to speak against it upon the floor of the Senate, because I am afraid that if the government had taken it over prior to our getting into the war I might not have been permitted to speak."

In concluding his remarks on the bill, Senator Wheeler emphasized that the bill provides for the automatic return of the telephone and telegraph facilities to private control six months after peace has been declared. He said that he did not believe there was the slightest chance that Congress would ever use such legislation as a device for installing a permanent policy of public ownership and operation, "unless the complexion of the Congress of the United States completely changes."

▼ ▼

Telephone Operators Needed by Government

The government wants telephone operators in Washington, D. C., according to the Civil Service Commission. The pay is $1,260 annually, and six months' experience is required.

The commission also repeated that radio and telegraph operators are needed.

Ask for descriptive literature and prices.

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The Operator's Corner

By MAYME WORKMAN
Traffic Supervisor
The Illinois Telephone Association

ONE OF THE MANY things of vital importance during the present emergency is the maintenance of a complete and up-to-date personnel record in the traffic department. Every chief operator should know when, where and how she may reach her employes with the least possible delay.

From experience, the writer has observed that in some central offices a very meager personnel record is maintained, while in others no record of any kind is available.

The most convenient, compact method of maintaining a personnel record for ready reference is an employe's card record. The best record of this type coming to the writer's attention recently was a Kardex visible record. The cards used provided ample space for a complete history and up-to-date record of every employe. The cards are filed in a flat holder which can be placed in a drawer at the chief operator's or clerk's desk. Both sides of the card can be used so that one card can be used for a two years' record.

All of the following items, and several others not applicable to all classes of exchanges were included on the card used in the Kardex file. The items listed below are essential and can be used in any personnel record.

NAME—The employe's name should be recorded exactly as shown on the employe's social security card except that the last name should be shown first. In the name space the letters "M" and "S" should appear, and if the employe is married a line should be drawn through the "S," and vice versa. The employe's telephone number should be entered, following her name.

EMERGENCY LIST—Codes are used, such as numerals, to indicate if the employe lives within walking distance of the exchange. For example, the numeral may be used and, if the employe does live within walking distance, the numeral is encircled to indicate this condition.

OPERATOR'S NUMBER—This information should be entered on the personnel record.

BOARD—An employe having both local and toll experience, with the greater part of her time being assigned to toll is shown as "T" plus "L."

ADDRESS—The employe's address is shown.

CLASSIFICATION—If an operator is a regular full-time employe, this is indicated by the code "R.F.". Other codes may be used to indicate an operator's classification.

TITLE—This information is entered in exchanges having supervisors, auxiliary operators, clerks, etc.

LOCKER—Where lockers are provided, the employe's locker number is shown.

TOUR—The regular tour the employe has been assigned is entered in code; "MA" for morning and afternoon, "ME" for morning and evening, "AE" for afternoon and evening, "R" for rotating, "N" for night, etc.

VACATION DATE—The employe's first and second choices are entered and, below this entry, the vacation date assigned.

EXCUSED TIME—The code "AXE" is used to indicate excused time and the dates on which the employe was excused are entered.

BIRTH DATE—The established social security date of birth is recorded.

WAGE SCHEDULE DATE—Is entered.

TOUR PREFERENCE—The employe's requested tour preference may be entered if desired.

TOUR ASSIGNMENT—The date of a tour assignment is entered and the hours assigned are recorded.

HOLIDAY WORK—The beginning and ending hours, for example, (8-5) of each holiday worked are shown.

SOCIAL SECURITY NUMBER—Is recorded.

CONCESSION—If an employe has a concession telephone, this information is entered.

EDUCATION—Codes are used for indicating the employe's education; "gr" for grammar school, "H.S." for High School, "B.C." for business college and "Col" for college. The number of years of education are entered before the code, for example "4 H.S."

ABSENCE PAID—The days an employe was absent for which she was paid is shown and the reason for the employe's absence is indicated in code, such as "10, 2.I 5." This indicates that the employe was absent five days on account of illness.

ABSENCE NOT PAID—This information is entered as prescribed above.

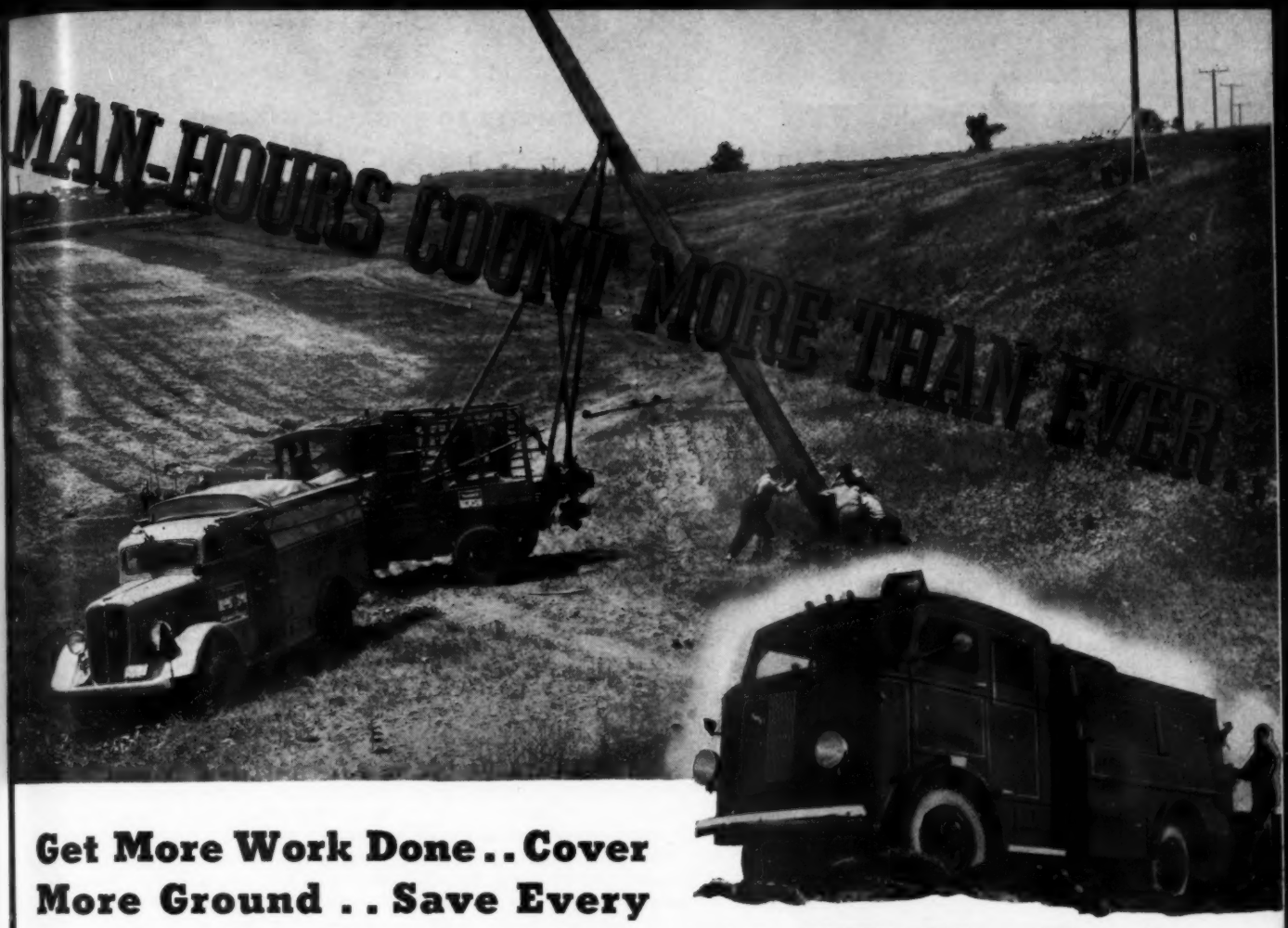
DISABILITY AND LEAVE—The date the employe's leave of absence started and the date she returned to work is entered.

TARDY—The dates on which tardiness occurs are entered on the day they occurred.

SUNDAY WORK—The card record provides a space for the Sundays in each month of the year. The Sundays on which the employe works and the hours worked are entered in the proper space.

Other information of value to some specific exchange may be included if desired.

Chief operators who have not maintained a personnel record in the past are urged to establish such a record, with the least possible delay. As stated in the beginning, this information is of vital importance during the present emergency. If you have a personnel record, but it does not contain all of the essential information, the neces-



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FWD TRUCKS

NOW — with the nation fighting "all-out" for Victory — the vital services rendered by the public utilities will face extra burdens . . . line construction and maintenance must keep step with emergency demands.

And utility management will have to contend with problems of a diminishing supply of trained man-power as well as do their part in conserving gasoline — oil — tires—keep line construction and maintenance "overhead" to the very minimum.

Putting an FWD line truck to work is like adding several crews of linemen — adds so much to the work range and capacity of trained men — gets them through with full equipment to the "hard places to get to," where ordinary trucks bog down. On or off the highway FWD's cover the ground faster — surer — safer — and do so with true operating economy, far less wear and tear on truck and tires.

FWD offers a complete line of engineered trucks for utility service. Special power take-offs for operating a winch and boring machine are incorporated into original design. FWD builds its own cabs and utility bodies — can furnish conventional or over-engine cabs with seating capacity from 2 to 7 men . . . Write for FWD catalog — "Public Utility Trucks That Follow The Job."

THE FOUR WHEEL DRIVE AUTO COMPANY
CLINTONVILLE, WIS. • Canadian Factory: KITCHENER, ONT.

FWD Men Who Specialize in Line Trucks

Arthur W. Gleitsmann—Public Utility Sales Representative for Eastern U. S. and Canada. 20 years with FWD. Organized and headed the Public Utility Sales Department of FWD.

Geo. McCauley — Supervises the FWD Utility Production Division. 13 years experience with FWD—knows all phases of utility work construction.

C. D. Shumaker—Assistant Chief Engineer at FWD. A veteran automotive engineer with more than 25 years of experience — 20 years with FWD.

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CABLE HANGERS
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PROMOTED TO BRIGADIER GENERALS

Photo by U. S. Army Signal Corps

BRIG. GEN. ROGER B. COLTON

Photo by U. S. Army Signal Corps

BRIG. GEN. JAMES A. CODE, JR.

The records of long, efficient and faithful service to the Army of these two Signal Corps officers were recognized recently when they were promoted from Colonels to Brigadier Generals.

General Colton chose the Army as his life work upon graduation from Yale University in 1908 and he has had a varied career, being stationed at posts throughout the United States and its possessions. At present he is director of the Signal Corps Laboratories at Fort Monmouth, Red Bank, N. J.

General Code also has had a varied service record, dating back to his graduation from the United States Military Academy in 1917. He has filled a number of important Signal Corps posts and has served in the Philippine Islands and Panama. At the present time he is on duty in the Office of the Chief Signal Officer, Washington, D. C.

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sary additions should be made as soon as possible.

Questions from Illinois Operators

1. On a person-to-person call for a party located at an army camp, is it desirable to secure information, if possible, indicating the unit or outfit to which the called party belongs?
2. Should the report charge be waived on a long distance call covered by a local call?
3. On a call from an attended public station, if the charge is less than 25 cents, does the six per cent federal tax apply on the call?
4. In quoting the amount of the charge on a long distance call subject to the graduated federal tax, should the tax be mentioned?
5. What is a "Personnel Record?"

The answers to these questions are presented on page 38.

▼ ▼

N. C. Association Changes

H. W. DEWEY, president of the North Carolina Independent Telephone Association, has announced the resignation of R. S. DURANT, Southern Pines, who was elected to serve as secretary-treasurer of the association for the year 1942.

R. M. TUCKER of the North State Telephone Co., High Point, was elected to succeed Mr. DuRant as secretary-treasurer.

▼ ▼

Mt. Vernon, Ohio, Exchange Plans New Building

Plans for the erection of a new building for the Mt. Vernon (Ohio) Telephone Co. were recently drawn, but a definite decision to build was deferred because of uncertainty about supplies of materials.

Manager C. R. Appleton said the Mt. Vernon exchange would be switched to the dial system when the new building is erected.

▼ ▼

A columnist in the *Columbus (Ohio) Journal* states that telephone companies are utilizing a new synthetic finely-spun thread instead of Japanese silk formerly used as insulation on over 500,000 miles of switchboard wire.

Commissions and Courts

Toll Connection Hearing May Be Held in Fort Smith, Ark.

I. H. Nakdimen, president of the Oklahoma - Arkansas Telephone Co., Poteau, Okla., has requested the Federal Communications Commission to transfer from Washington, D. C., to Fort Smith, Ark., its hearing scheduled for February 25 on his petition seeking a physical toll connection for his company with the Southwestern Bell Telephone Co.

For several years Mr. Nakdimen has been endeavoring to secure toll connection from the Bell, as well as damages for its refusal, taking the case through various commissions and courts, and he asked that the present litigation be carried on in Fort Smith, instead of Washington, because of his age and health. Furthermore, he felt that sending employes and witnesses to Washington would not be economical or conducive to the best interests of his company.

▼ ▼

Minnesota Commission Approves Property Sale

On February 11 the Minnesota Railroad & Warehouse Commission granted the joint application of the Northwestern Bell Telephone Co., purchaser, and the Twin Valley-Ulen Telephone Co., seller, for the approval of the transfer of certain telephone property located in Mahnomen county.

The commission found that the Northwestern Bell owns and operates a telephone exchange at Mahnomen with rural lines radiating therefrom and the Twin Valley-Ulen company owns and operates an exchange at Twin Valley, together with a toll line used for business between Twin Valley and Mahnomen. It was found desirable to discontinue this line because of the excessive expense involved in continuing the circuit under dial operation.

It was further found that on mutual agreement the Twin Valley-Ulen company was to sell Northwestern Bell a seven-mile section of toll line, that upon said purchase and discontinuance of the toll line, the rural rates of each company for Mahnomen and Twin Valley will be fair and reasonable rates for such rural service.

The commission therefore authorized the Twin Valley company to sell and transfer telephone property hereinbefore described to Northwestern Bell and authorized that company to purchase all of the telephone property above described from the Twin Valley company. The two companies were also authorized to discontinue the toll line and convert it to rural telephone service, at which time the authorized rates for rural service should apply.

▼ ▼

Prattsville, Ark., to Have Telephone Company

Interests headed by W. R. Stephens, Little Rock, Ark., investment broker, who is a native of Prattsville, Grant county, have organized the Grant County Telephone Co., Inc., to operate telephone facilities acquired from the West Memphis Power & Light Co.

The new firm recently filed incorporation articles with the secretary of state. The new company's authorized capital stock is 3,000 shares having no par value. Original capital is $600. Incorporators are Mr. Stephens, 474 shares; James E. Womeldorff, Little Rock, 125, and R. P. Lindsey of Little Rock, agent, one share.

A hearing before the state utilities commission on this West Memphis-Grant County transfer is scheduled for February 24. The West Memphis company is disposing of its electric and other utility facilities outside of Crittenden county.

Mr. Stephens said the new corporation, the only telephone firm in the county, will give assurance that service will be satisfactory and a long distance line between Sheridan and Pine Bluff will be maintained in good condition.

▼ ▼

Proposes Telephone Service Over REA Power Lines

A bill has been introduced in the South Carolina legislature which proposes to have telephone service offered over the power lines of the Rural Electrification Administration.

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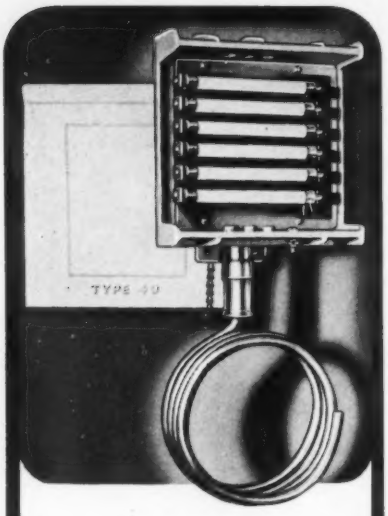

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Summary of Commission Hearings and Rulings

Illinois Commerce Commission

February 17: Hearing at Springfield on application filed by Illinois Valley Telephone Co. for authority to advance rates for telephone service in Roseville, as stated in company rate schedule.

February 17: Hearing at Springfield on application filed by the Illinois Commercial Telephone Co., Springfield, for authority to purchase from Indiana Bell Telephone Co. certain telephone utility property and facilities located in Lawrence county, Illinois; to establish a schedule of rates, rules and regulations and charges applicable to customers in the area served by the said property and facilities; and for a certificate of convenience and necessity.

February 17: Hearing at Springfield on application filed by Illinois Central Telephone Co. with headquarters in Clinton, for authority to increase rates for telephone service in Henry, as stated in the company rate schedule.

February 18: Hearing at Springfield on application filed by Illinois Valley Telephone Co., with headquarters at Streator, for authority to increase rates at its Cuba and Vermont exchanges as stated in the company rate schedule.

February 18: Hearing at Springfield on application filed by Beason Telephone Co. for authority to increase rates for toll service at Beason and vicinity as stated in the company rate schedule.

February 18: Hearing at Chicago on application filed by city of Berwyn vs. Illinois Bell Telephone Co. for authority to reduce toll rates between Berwyn and Chicago.

Indiana Public Service Commission

February 2: Application filed by Paul A. Hockett, doing business as the Pekin Rural Telephone Co., for authority to file the following schedule of rates:

Private line business, $2.00; private line residence, $1.75; two-party line residence, $1.35; rural party line business, $1.75; rural party line residence, $1.35; extension telephone, 50 cents; hand set, 25 cents additional on all classes of service. Company also asks permission to apply these rates to all subscribers whether or not they own their own equipment and asks for the privilege of buying facilities from subscribers where they are individually owned and to extend service credit in the amount of the facilities purchased to the subscriber.

February 9: Application filed by Carlisle Telephone Co. of Carlisle, for authority to issue and sell at par 6% first mortgage bonds in the amount of $12,500. These bonds to mature in 1957 and the proceeds from the sale of same to be used to rebuild and improve telephone plant and equipment.

Kansas State Corporation Commission

February 2: Authority granted Partridge Telephone Exchange at Partridge to transfer its franchise and cease operating as a public utility.

February 4: Order issued Southwestern Bell Telephone Co. in re approval of general exchange tariffs and local exchange tariff.

February 23: Hearing in re complaint against American Telephone Co., with headquarters located at Abilene, and Southwestern Bell Telephone Co. by M. F. Gardner, charging unsatisfactory telephone service.

February 23: Hearing on application filed by Western Light & Telephone Co., with headquarters located in Kansas City, for authority to discontinue the central office and switchboard at its Beaver exchange.

March 16: Hearing in re complaint filed against Southwestern Bell Telephone Co. and Peoples Telephone Association, Athol, by Vern V. Albrecht and C. V. Amis. Complainants desire reconnection to the Smith Center Telephone Exchange at Smith Center.

Minnesota Railroad and Warehouse Commission

February 11: Order issued dismissing further investigation of the service rendered by the Farmers Mutual Telephone Co., Madison, Lac qui Parle county, required improvements having been made.

Ohio Public Utilities Commission

February 9: Miltonsburg Telephone Co. ordered stricken from list of operating public utilities upon confirmation of a report that no service has been furnished since May 22, 1941, that the plant is incapable of furnishing service and that the company is unable to finance a rehabilitation of the property.

February 9: Authority granted Ohio Bell Telephone Co. to amend its message toll service tariff to show Vinton as a rate center and to include it in the list of toll stations which are designated as their own rate centers. The filing will result in no change in the method used in determining toll rates or in the rates now in effect for various distances.

February 5: Application filed by Ohio Standard Telephone Co., with headquarters located at Jackson, for authority to establish the rate for selective ringing five party line residence service at its Georgetown exchange at $2.00 per month gross or $1.75 net.

Wisconsin Public Service Commission

February 18: Hearing at Madison on application filed by Kegonsa Independent Telephone Co. Inc. for authority to increase rates.

February 18: Hearing at Eau Claire on application filed by Eau Claire Telephone Co. for authority to increase rates.

February 19: Hearing at Madison on application filed by Swim Creek Telephone Co. for authority to increase rates.

February 21: Hearing at Madison on application filed by Commonwealth Telephone Co., Madison, for authority to expand and improve its Sauk City-Prairie du Sac exchange to serve the Badger Ordnance Plant.

▼ ▼

Dies from Burns

Burns suffered when her robe accidentally caught fire from a gas grate caused the death February 9 of MISS HELEN J. SHERMAN, 44, chief operator for the Ohio Central Telephone Corp. at Johnstown for more than 20 years.

Miss Sherman is survived by her mother, a brother and an aunt.

In the Nation's Capital

(Concluded from page 17)

lation on the sale of retreaded and recapped tires, passenger cars of public utilities used in the service were given a break. In other words, if a public utility uses a truck in its business it can get new tires. If it uses a passenger car it can get recapped or retreaded tires. This is better than nothing.

It still leaves up in the air a question of considerable importance to some of the very small companies —the question of part-time use of automobiles (trucks and passenger cars) for utility as well as non-utility purposes. By way of comparison doctors and nurses have been placed in the eligible class to receive new tires for passenger cars "where necessary to their professional service," without any attempt to distinguish (by OPA regulation), between the social use and professional use which a doctor or a nurse might make of the same vehicle.

As for public utilities, all we know right now is that the OPA has promised to give this problem of the smaller companies very serious consideration. Also we know that some public utility companies have already put certain classes of operating employes on bicycles.

* * *

The differences between the FCC and the House of Representatives are still boiling over. Last week the House Rules Committee considered the question of whether the Dies Committee on Investigating Un-American Activities should be given enough money to continue its work. The Rules Committee decided in favor of Dies but not without the FCC getting into the picture.

One point in testimony against the Dies committee was a charge that for months the FCC's short-wave monitoring service had found that "the man most frequently and approvingly quoted" on Nazi broadcasts was Mr. Dies. The chief analyst of the monitor service, the Rules Committee chairman pointed out, is Goodwin Watson, the subject of much recent House debate because of past alleged activities on behalf of groups and movements cited by the Dies group as "Communist fronts."

On January 22 the House passed an appropriation bill covering expenses of independent offices and establishments of the government, which carried a provision specifying that none of the FCC's funds could be used to continue Mr. Watson's employment.

This action was taken after Dies committee records had detailed that Mr. Watson besides being a previous signer of a petition asking that the investigation committee be liquidated, had been active in the sponsorship or action of alleged "front" organizations and movements.

In a communication to the chairman of the FCC, Mr. Dies asked for more details of reports made by the foreign broadcast monitoring service, particularly as they dealt not only with mention of his name but the names of others. The implication is clear that Mr. Dies feels the FCC is lending itself and its facilities to an effort to "smear Dies." Needless to say, this development did little to smooth the ruffled relations between the FCC and the lower chamber of Congress.

* * *

Another troubled front for the FCC is its investigation into control of radio broadcasting stations by newspaper publishers. Already, in this department, attention has been called to the recent decision of the District of Columbia Court of Appeals which sustained the FCC's right to subpoena witnesses, but at the same time volunteered the opinion that the FCC has no authority to deny radio licenses to newspapers.

Last week Elisha Hanson, counsel of the American Newspaper Publishers Association, sought to place the decision in the record of the FCC investigation. When Mr. Hanson asked to place this decision in the record, Chairman Fly would not admit it, remarking that members of the commission already had read the decision.

"I am glad you did," Hanson commented. "And I hope you understood it and enjoyed it as much as I did."

Mr. Fly did not reply.

▼ ▼

According to an article in *Labor Union*, published in Dayton, Ohio, Bell System public telephone coin-boxes collect two billion nickels a year—$100,000,000 worth of talk.

PROTECT your CASH RECEIPTS

with this **GRAY**

No. 6001-B

SELF-LOCKING COIN BOX

Used today in hundreds of thousands of telephone pay stations for fast and efficient collection with absolute security to all concerned.

The coin opening in the cover is automatically locked when the receptacle is removed from the pay station. The collector does not handle any money, but merely replaces the full receptacle with an empty box which has had the cover sealed in place at the company office. Full responsibility is thus placed on the office.

Available in two sizes, the 6001A or 6001B coin box is interchangeable with our standard 2A open type receptacle.

NOTE — The Government's 6% excise tax is NOT assessed on unattended pay station calls.

AUTHORIZED AGENTS:

American Automatic Electric Sales Co.
Graybar Electric Company
Kellogg Switchboard & Supply Company
Leich Sales Corporation
The North Electric Mfg. Company
Stromberg-Carlson Telephone Manufacturing Company

IN CANADA:

Canadian Telephones & Supplies, Limited
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THE GRAY MFG. CO.

HARTFORD, CONN.

Welding Taught the Safe Way—Via Telephone

Apprentice welders were incurring so many burns in learning their work that a practical safe way was devised for teaching the trade by telephone in the Caterpillar Tractor Co. plant at Peoria, Ill. This one-way telephone system connects the instructor and the apprentice, as may be seen in an accompanying photograph, and not only eliminates welding injuries but speeds student operations which is an important consideration in these critical war times.

INSTRUCTOR K. H. JACKSON (right) teaches welding to apprentices at the Caterpillar plant, Peoria, Ill., by means of a one-way telephone system, which is both safe and efficient.

Realizing the need for an improved method of instruction, Kenneth H. Jackson, supervisor of the sheet metal and arc welding course at the Caterpillar plant, inaugurated this one-way telephone system that has proved most successful.

Taking two ordinary welding helmets, Mr. Jackson installed a transmitter in the one to be worn by the instructor, and a receiver in the one to be worn by the apprentice (see accompanying photograph). The transmitter and earphone are plugged into a wall box enclosing four "B" batteries in series. Wires from the transmitter and receiver are supported and kept out of the way by ring supports suspended overhead.

Fifteen feet of wire are used to connect the helmets in use at Caterpillar, but the length can be varied to suit the need, it was stated. The system of rigging has thus far proved quite effective in keeping the wire in such position that it does not hamper either student or instructor.

Prior to use of the telephone system in the apprentice's modern welding booth, the instructor either had to shout instructions or both teacher and pupil had to remove helmets. Quite often the instructor suffered flash injuries when the apprentice made his arc before the teacher was able to put his helmet back on his head.

After the apprentice laid his bead, under the old method of teaching, the instructor and pupil would go back over the work, discussing appearance, fracturing the weld for visual inspection, picking flaws and trying to recall the movements responsible. Naturally, this was not always possible.

Using the telephone plan, the instructor now is able to give instructions as the apprentice works. He can tell the student to shorten or lengthen his arc, order a change in the angle of an electrode and comment on the rate of travel, speaking in an ordinary tone that is quite audible to the person on the receiving end. Quite often the instructor may point out things under the arc that are impossible to show on the classroom board.

The one-way telephone system for teaching welding, inaugurated in the Caterpillar plant by KENNETH H. JACKSON, supervisor of the company's sheet metal and arc welding course, has proved very satisfactory. Two ordinary welding helmets are used, a transmitter being installed in the one for the instructor and a receiver in the one to be worn by the apprentice.

All this gives the apprentice the right start. He not only has his mistakes pointed out the instant he makes them, but is thoroughly drilled in the proper and safe methods of procedure. When one considers that safety engineers claim proper job instruction is one of their biggest problems, the telephone system of teaching takes on added significance.

COMING CONVENTIONS

Texas Telephone Association, Hotel Adolphus, Dallas, March 18, 19 and 20.

Kansas Telephone Association, Hotel Jayhawk, Topeka, April 2 and 3.

Iowa Independent Telephone Association, Hotel Ft. Des Moines, Des Moines, April 7, 8 and 9.

Nebraska Telephone Association, Hotel Paxton, Omaha, April 14 and 15.

Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, April 21 and 22.

United States Independent Telephone Association, Spring Conference, Hotel Stevens, Chicago, April 28 and 29.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 6 and 7.

Illinois Telephone Association, Pere Marquette Hotel, Peoria, May 12 and 13.

Pennsylvania Independent Telephone Association, Sterling Hotel, Wilkes-Barre, May 21, 22 and 23.

New York State Telephone Association, Hotel Syracuse, New York, May 25, 26 and 27.

Wisconsin State Telephone Association, June 3 and 4.

Missouri Telephone Association, Muehlebach Hotel, Kansas City, November 16, 17 and 18.

Oklahoma Convention To Be Held in Fall

The first of a series of three or four district meetings of the Oklahoma Telephone Association, planned for 1942, will be held at Geary, Okla., on March 6, H. W. Hubenthal, association secretary, has announced.

Claude Smithpeter, manager of the Geary Telephone Co., will sponsor the meeting. This and the succeeding meetings will center about problems of national defense and how telephone people can best cooperate in the war effort.

These district meetings will replace the usual spring convention of the Oklahoma Telephone Association. This annual statewide meeting has been postponed until next fall, probably in November.

Maj. C. A. Kraege Called to Service

MAJ. CARL A. KRAEGE, vice president and treasurer of the McKrae Telephone Co., Burlington, Kans., has gone to Washington, D. C., where he has been assigned to the staff of Maj. Gen. Dawson Olmstead, chief signal officer of the United States Army. He reported for duty on Saturday, February 21. He goes into the Signal Corps with an excellent background of work in communications having spent 17 years in all phases of the telephone business.

MAJ. CARL A. KRAEGE

Major Kraege had been associated with the McKrae company for about four years and was active in its organization and in the management of the company's 13 exchanges.

In an interview with Major Kraege on his way through Chicago he told TELEPHONY he had been busy the past several weeks in organizing his office staff to carry on efficiently while he is in the service. MRS. KRAEGE has been in the office for about six weeks familiarizing herself with the work and will have charge of the office. Before her marriage, she worked several years for the Southwestern Bell Telephone Co. in Topeka, then in La Porte, Ind., as secretary of a telephone corporation and as cashier of the principal exchange, therefore, she has an excellent telephone background and is thoroughly familiar with office work.

FRED MARSHALL will be plant superintendent for the McKrae company in charge of construction.

BOYD WHITE is district manager of the Burlington district which includes the exchanges at Burlington, Neosho Falls and Piqua.

L. H. ANDERSON is manager of the exchanges at Buffalo, Benedick, Toronto and Quincy.

M. E. HOWARD, who had charge of new construction of the new Burlington plant, is district manager at Fredonia and his district includes Mr. Anderson's group plus Fredonia, Altamont, Altoona, Coyville, Fall River and LaFountaine.

In the February 11 issue of *The Daily Republican*, Burlington, Kans., an editorial tribute was paid to Major Kraege stating that "Burlington is loaning another valuable man to Uncle Sam 'for the duration.'" Note was taken of the fact that Mr. Kraege had been active in civic affairs and of his sincere interest in community activities. He joins the many other telephone men who have gone into the service of our country during this second, critical World War.

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OBITUARY

Funeral services were recently held for FRANK X. STAUB, 62, commercial engineer with the Home Telephone & Telegraph Co., Fort Wayne, Ind., who passed away February 7 as the result of a stroke. He resided in Fort Wayne most of his life and had taken part in many civic activities.

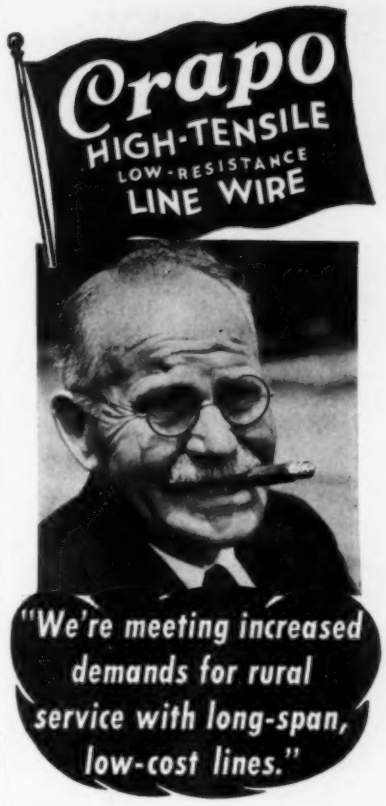
Mr. Staub had been associated with the Home company since its establishment 46 years ago, and was chairman of its safety committee. He was president of the Home Telephone Athletic Association for several years, a member of the Chamber of Commerce, of Hoosier Chapter No. 16 of Telephone Pioneers of America and of the United States Independent Telephone Association. He was also a civilian defense warden.

For a number of years he had been chairman of the Christmas seal sale and president of the YMCA Industrial Athletic League. He belonged to the Kiwanis Club, the Knights of Columbus, the Elks, and was prominent in Boy Scout activities.

Surviving are his widow and two sons, Frank, Jr., and Paul W., as well as two brothers, three sisters and one grandchild.

▼ ▼

The most talkative state in the union is California, according to the *American Magazine*, which cites census figures to show that the average Californian makes 464 telephone calls a year. The state of Washington is second and Iowa, third.



LONG-SPAN construction, made possible by *Crapo* High-Tensile Line Wire, is enabling telephone companies everywhere to extend their lines economically and profitably. Reports of typical installations tell of substantial reductions in construction costs, of savings in time and material and of improved operation. Decreased maintenance expense, too, is the rule wherever this wire is in service.

● *Crapo* HTL-85 permits spans of 225 feet in Heavy to 375 feet in Light Loading Districts; provides stronger, safer spans when used for replacement on existing lines. *Crapo* HTL-135, with two and one-half times the tensile strength of standard B.B. wire, makes possible spans of 350 feet in Heavy to 500 feet in Light Loading areas. Both wires possess telephonic transmission qualities superior to the B.B. grade.

● Complete technical data and valuable construction practice information is available for the asking. Write today for Bulletins No. 201 and No. 202!

Produced by the Manufacturers of *Crapo* Galvanized Steel Strand, Telephone and Telegraph Wire, Construction Wire, Tie Wire Ground Wire.

INDIANA STEEL & WIRE CO.
MUNCIE, INDIANA

South Dakota Company Announces Personnel Changes

In order to better assist the field operating groups in their commercial work and because of the absence of Maj. L. D. Densmore, former commercial manager, who was recently called into active duty with the U. S. Signal Corps, R. A. Phillips, general manager of the Central Electric & Telephone Co., Sioux Falls, S. D., recently announced the following changes in the office personnel:

K. L. Dally, who for some years has acted as assistant to Mr. Phillips, has been named general commercial manager.

C. O. Field has been transferred from engineering to the commercial department in the capacity of commercial engineer. Replacing Mr. Field as chief telephone engineer is Thomas Newman, who has been associated with the telephone engineering department for two years.

Everett Baxter, who for some time has been in the commercial department, is to continue also with the title of commercial engineer, and it is expected that both Messrs. Field and Baxter will work on problems involving all utilities.

While for some time H. M. Lindy has been doing a considerable amount of telephone traffic supervision work, he now will be relieved of all other items so that he can concentrate his attention on telephone traffic work. He has been named traffic supervisor, working under the supervision of the general commercial department.

The services of Helen Farrell, who so successfully has handled the editorship of *Public Service* during the recent months, will be expanded to include not only *Public Service* but practically all items pertaining to bulletins, campaign literature, etc., involving the commercial department and the field operating group. Miss Farrell has been given the title of commercial editor.

▼ ▼

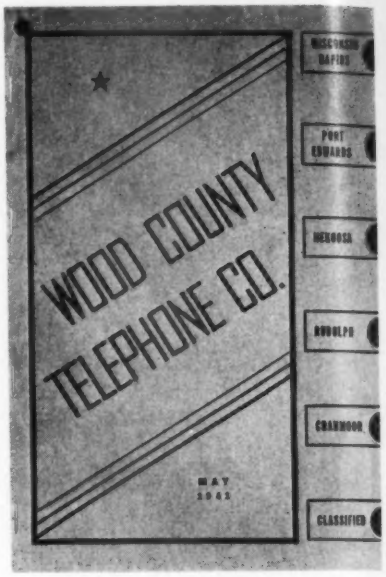
"Nervous" Driving Wastes Gasoline

Hundreds of thousands of gallons of gasoline can be saved annually, according to automotive engineers, if all passenger car, bus, and truck drivers would cure themselves of "nervous" driving habits.

"One of the worst, most annoying, and costly of these habits," said an International Harvester truck engineer recently, "is the practice, often an unconscious one, of 'patting,' 'playing,' or 'pumping' the accelerator pedal while the vehicle is standing still at a traffic light or while parked with the engine running."

DIRECTORY INCORPORATES NEW FEATURES

The directory issued by the Wood County Telephone Co., Wisconsin Rapids, Wis., last year incorporated some new features that deserve commendation and comment. The accompanying photograph of the attractive front cover of the directory shows thumb cut-outs with the names of the exchanges set immediately opposite—a decided aid to the subscribers. On the inside pages the telephone number is listed in the first column, and then the name and address of the individual; thus making the telephone number stand out in close proximity to the last name of the individual (i e., 1665-M Henke, Harold A., residence.....320 Fourteenth Ave. N.). This has an obvious advantage over having the number appear at the extreme right-hand end of a line following the address. D. G. Smart is manager of the Wood County company which has incorporated such progressive features in its directory, in addition to other improvements on the inside pages. In text matter on the inside of the front and back covers, a clever approach was made in selling extension telephones.



Recently International truck engineers made tests of how much fuel can be consumed by impatiently "patting" the accelerator pedal while the vehicle is standing still. These tests were made on a typical one and one-half ton truck (233-cubic-inch-displacement engine).

For best fuel economy, the engine idling speed should be as low as possible. For this test, idling speed was adjusted to 325 r.p.m. at which speed the engine consumed one-fourth gallons of fuel an hour. Tests were made on the basis of a city driving condition where a total of 150 traffic stops are made each day. An average of 45 seconds was allowed per stop, making a total of one hour and 52½ minutes a day during which the truck was standing still with the engine idling at 325 r.p.m. Fuel consumed idling was only .4675 gallon.

With a "foot nervous" driver at the wheel the same test was made. These tests proved that by "patting" the accelerator *once* at each of the 150 stops he would burn an additional one-half pint of fuel a day, or in a 312-day working year, he would actually waste 19½ gallons of gasoline.

If our "nervous" driver was one who really "beats a tattoo" on the accelerator pedal while impatiently waiting for the traffic light to change, and if he raced his engine *10 times* in each of the 150 daily stops, he would waste 195 gallons of gasoline a year.

Suppose we assume a fleet of 100 vehicles operating in city service with each truck averaging 150 traffic stops a day. In this fleet there are 25 drivers who are not "foot-nervous"; 35 drivers "pat" only once each stop; 20 "pat" twice; 10 "pat" four times; five "pat" five times; and the remaining five, worst offenders in the fleet, really do a gas-wasting job by pumping the accelerator 10 times at each stop. This table indicates the gasoline that the drivers of that fleet would waste in a 312-day working year:

No. of Drivers	Unnecessary Accelerations Per Stop (150 Stops Daily)	Gallons of Gasoline Wasted Annually
25	None	None
35	1	682.5
20	2	780.0
10	4	780.0
5	5	487.5
5	10	975.0
100		3,705.0

▼ ▼

Titusville, Pa., To Have New Dial System

The Titusville, Pa., office of the Pennsylvania Telephone Corp. (with headquarters located in Erie) announces that it expects the new dial system will be placed in service during the month of April. The new equipment has been received and a crew of technicians is at work arranging and installing the system.

A new directory will be delivered at the time of the cut-over and all Titusville telephone numbers will be changed. Complete instructions on the use of the dial telephone will be contained in the new directory.

New Edition on Electrical Insulating Materials

The latest edition of "A. S. T. M. Standards on Electrical Insulating Materials," an annual publication, is considerably enlarged by the inclusion of new specifications and tests and several reports and papers. It provides in their latest form as of December, 1941, the same 58 specifications and tests issued by the American Society for Testing Materials, covering this field.

Outstanding activities carried on by A.S.T.M. Committee D-9 on electrical insulating materials are covered in certain reports, one on punching quality of laminated phenolic sheet; a study of measurements of power factor and dielectric constant at ultra-high frequencies; a report on round-robin tests of power factor and dielectric constant for glass; and several discussions on the significance of tests of insulating materials, including dielectric strength.

Two test methods cover insulating paper, four apply to mica products; and there are eight specifications—four each for various rubber products and textile materials; and four standards give tests and tolerances for various types of glass products and for woven tapes. Six standards give tests covering arc resistance, dielectric strength, power factor and related properties and tests.

This publication, which includes for the first time a detailed index, also includes two tables of contents, one listing standards in numeric sequence. The 1941 report of Committee D-9, with its recommendations on standards, is given.

Copies of the 450-page publication can be obtained from A.S.T.M. Headquarters, 260 S. Broad St., Philadelphia, Pa., at $2.25 per copy, heavy paper cover.

Overtime Payment Service For Defense Workers

To meet the bill-payment requirements of defense industry employes and others who find it inconvenient to come in during business hours, the Southern California Telephone Co., Los Angeles, Calif., provides a vault deposit service similar to that offered by many banks. Set into a wall panel in the outer lobby of the main office building is a deposit slot similar to that in a mailbox. This, of course, leads to an armored vault. In a compartment above are kept deposit envelopes for use by subscribers wishing to pay their bills in this way.

The envelopes used carry printed instructions asking the subscriber to enclose his bill stub or to fill in a tabulation giving name, telephone number and amount of payment. It is stated that a receipt will be mailed for payments made in cash.

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MICHIGAN POLE & TIE CO.
NEWBERRY—GRAND RAPIDS
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POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

C. M. Christiansen Co., Phelps, Wis.—Northern White Cedar Poles, plain or butt treated. Quotations on request.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants: Beaumont and Texarkana, Texas.

MacGillis & Gibbs Company, Milwaukee, Wis.—Northern White and Western Red Cedar Poles. Plain or butt-treated. Immediate quotations on request.

T. M. Partridge Lumber Co., Minneapolis, Minn.—Northern White—Western Red Cedar Poles. Plain or butt-treated.

Valentine Clark Corporation, 2516 Doswell Ave., St. Paul, Minn.—Finished Cedar Poles. Plain or butt-treated.

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A SALES ORGANIZATION *exclusively*..
That Has Never Failed to Produce More Net Revenue (All Costs Considered) for Telephone Companies Served.
IF INTERESTED in more net telephone directory revenue write or call at our expense.
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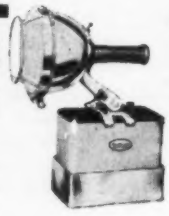
MASTER LIGHTS



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A MASTER-LIGHT FOR EVERY NEED

CARPENTER MFG. CO.
"MASTER-LIGHT MAKERS"
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HELP WANTED

TELEPHONE COMPANY operating a group of Automatic, Common Battery, and Magneto exchanges in the Southwest would like to consider application of experienced plant man capable of planning and supervising all types of plant construction and maintenance. Address with full information Box 9070, c/o TELEPHONY.

HELP WANTED: Central office equipment engineer, familiar with automatic, common battery and magneto equipment of all types. Capable of engineering central office conversions, maintenance and rehabilitation programs. Must be a man of broad experience. Telephone Services, Inc, Lincoln Tower, Fort Wayne, Indiana.

New Style Stewart Test Sets

Have detector coil for telling direction and lamp for telling distance to trouble.

Sent on trial. Price

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RECONDITIONED KELLOGG RELAYS

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POLARIZED
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We have in our stock thousands of relays which we completely rebuild and recondition, and which we put in excellent condition. You will save at least **40%** and much delay. We can ship PROMPTLY. Be sure to include **Code Numbers** or resistance and spring combination on your inquiries.

Write us today.

BUCKEYE TELEPHONE and SUPPLY COMPANY
COLUMBUS, OHIO

Answers to Traffic Questions on Page 30

1. This action is usually desirable since the called party must be reached through his outfit or unit.
2. The report charge should not be waived in this case.
3. Yes. This also applies to calls placed at public stations in central offices where the public station is not equipped with a coin collector and the calling party pays the cashier or switchboard operator for his long distance call (on calls where the rate is less than 25 cents).
4. The tax should not be mentioned unless the customer asks about it or questions the charge.
5. Please refer to preface for answer.

Changes at Manistique, Mich.

M. F. CAMPBELL, formerly of Fairmont, Minn., is the new local manager of the Manistique office of the Michigan Associated Telephone Co., whose main offices are located in Muskegon. Mr. Campbell takes the place of L. C. HARBIN who recently resigned. Two of Mr. Harbin's sons, Noel and Robert, are employed by the Michigan company in Muskegon.

Italy Takes W. E. Property

The Italian government has confiscated the properties of the Western Electric Co., Warner Brothers and First National Pictures, dispatches from Rome said.

Reconstructed Equipment

Kellogg No. 8A Talk through type repeating coils @	$ .75
Western Elec. No. 88B Repeating Coils @	4.50
Western Elec. No. 71A, C, or B types Retard Coils @	1.25
Gray No. 11 or No. 7 3 Slot Paystations	Price on application
Kellogg Drops and jacks 5 per strip—Practically all types. Per strip @	8.25
Kellogg No. 2880 4-bar 1000 or 1600 ohm compacts @	9.25
Stromberg Carlson latest type No. 896 3-bar 1600 or 1600 ohm compacts @ $8.00—4-bar @ $9.00—5-bar @	10.75
Western Elec. No. 20 desk set with Connecticut 3-bar 1000 ohm ringer external post connection signal set @	8.75
Stromberg Carlson No. 902 desk stand with 3-bar 1000-1600 or 2500 ohm ringer inside connection signal set @ $8.75—4-bar $9.50—5-bar @	11.00
Western Elec. No. 20 C. B. Ind. Coils 35c ea. No. 46 @	.50
Western Elec. No. 1801 C. B. PBX Swbd.	Price and description on request

REBUILT ELECTRIC EQUIPMENT CO.
1934 WEST 21st STREET
Pilsen Station
CHICAGO, ILL.

EXCHANGES HAVE FOUND THE WAY TO *Better Profits!*

IT'S NO coincidence that a great many *successful* small exchanges have Masterbuilt Junior Switchboards. For the Masterbuilt Junior was born with one purpose in life . . . and that, *to enable the small exchange owner to show a healthier profit at the end of the year.*

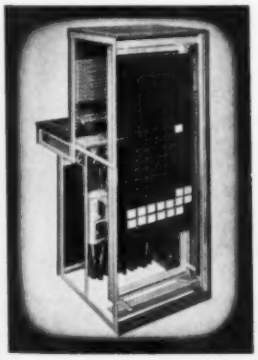
With it you can furnish either common battery or magneto service—or both at the same time! And, like in other towns, the majority of your subscribers want the improved service that common battery brings because it means no more cranking to ring central, no ringing off, and no more weak or dead dry cells to impair conversations. Instead, it assures speedier, more efficient service, simplified operation, immediate operator attention and better transmission. All of these make for greater use of the telephone, more toll calls, and more new subscribers.

Any wonder why the common battery idea continues to spread so rapidly? Your subscribers, too, want this "big city" service, and will pay you more for it. Yet, the flexibility of this board provides for maintaining your present rates for the comparative few who may wish to retain magneto service. It's easy to change over one or more lines at a time from magneto to common battery, by simply switching the line connections at the switchboard. And this entails no extra switchboard expense whatever!

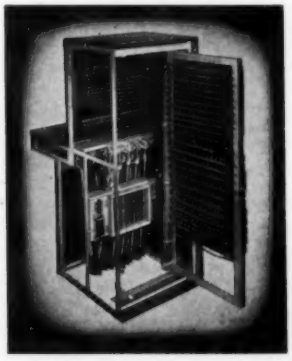
It costs less to furnish common battery service. Talking and ringing current can be supplied for as little as 10 cents a year for each common battery station. Think what you can save every year on this one item alone!

The Masterbuilt Junior is priced in the magneto switchboard class, but it can make profits for you that no magneto switchboard *ever* could. You owe it to yourself to investigate it *now*. Kellogg Switchboard and Supply Company, Chicago.

SIMPLE AND RUGGED! Typical of Kellogg design and construction, the Masterbuilt Junior assures many years of trouble-free service. Easier to operate than might be imagined.



NEAT AND ROOMY! All of the equipment in the Masterbuilt Junior is positioned and spaced for easy accessibility. No crowding, no obstructions; everything most conveniently arranged.



READY TO SHIP! Masterbuilt Junior comes completely set up, wired and tested in the Kellogg factory. Simply connect cable to the main frame, and the installation is done.

KELLOGG

EXTRA EDITION

Telephon

An Advertisement of Leading Supply Manufacturers Whose Product

KELLOGG LINE SUPPLY

IRONITE DROP WIRE IS STRONG AND FLEXIBLE

War time economy proves Ironite. In the last war as in the present it has demonstrated its value as a conserver of vital war materials. At the same time it meets all demands for efficient, satisfactory service. Ironite Drop Wire—

Is unusually strong — resists sleet loads on long spans;

Has high conductivity — Ironite No. 18 BWG is equal to No. 22 B&S copper in drop wire lengths;

Has insulation with 10 times required dielectric qualities;

Is flexible—works and ties easily.

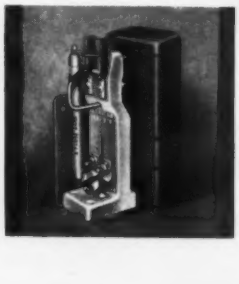
To help you meet rigid budgets in replacements you will find Ironite most reasonably priced. Specify Ironite Drop Wire for good service and low cost.

ODD ... BUT TRUE!

TIN MELTS AT 450°, LEAD AT 621° FAHRENHEIT. PURE TIN AND PURE LEAD, COMBINED IN CERTAIN PROPORTIONS, WILL MELT AT 358° FAHRENHEIT. THAT'S WHY KESTER SOLDER IS BETTER — BECAUSE KESTER USES ONLY PURE VIRGIN METALS TO PROTECT THE LOWEST MELTING POINT!
A BRIDGE ON THE L&N RAILROAD, CROSSING A BAYOU A FEW MILES EAST OF NEW ORLEANS IS ANCHORED BY 20 MATTHEWS SCRULIX ANCHORS, WHICH HAVE BEEN SCREWED DOWN ABOUT 80 FEET INTO THE SWAMPY GROUND. THIS JOB WAS DONE ABOUT 25 YEARS AGO!
500,000,000 ICE CREAM CONES COULD BE BOUGHT EACH YEAR WITH THE $25,000,000 SPENT ON ... TELEPHONE DIRECTORIES

Type "O" Sub-Station Protector Adopted By Leading Companies

The universal Type "0" Sub-Station Protector, product of Cook Electric Company, because of its convenience and satisfactory service has been widely adopted by successful operating companies. It is their standard! This protector is suitable for indoor and outdoor installation. It has an indexing mounting bracket which makes it possible to install the bracket separately and allows the protector unit to be turned on the bracket for convenient wiring. It also has Tru Gap lightning discharger, fuse protection, non-corrosive cover and phosphor bronze fuse clips.



MATTHEWS STAZRITE GUY GUARDS INSTALLED WITHOUT SPECIAL TOOLS

Matthews Stazrite Guy Guards cover guy rods and guy wires, making them visible and *safe*. They give years of efficient guy protection. Easily installed without special tools, they consist of one piece only which is attached to the guy strand at the upper end and guy clamp at the lower end. Designed so that galvanizing on the guard and the strand will not be scarred or crushed when attaching. Available in two types — "Half Round" and "Full Round."

Transmission Improved with Kester Rosin-Core Solder

Solder-protected joints eliminate high resistance points and intermittent open and closed circuits. To save trouble, every joint should have this extra protection. For many years, Kester Rosin-Filled Solder has been known as the most satisfactory product of its kind. Nearly 1½ tons of this solder are used every year in the Kellogg factory alone! So to save your time and money, and improve transmission, insist that all joints be properly soldered with Kester Solder. Available on 1-, 5- and 20-pound spools.

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EXTRA EDITION

...Product... Are Distributed by the Kellogg Switchboard and Supply Company

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"Eveready Air Cell" Operators' Batteries Are Noted for Constant Voltage Characteristics

These "Eveready Air Cells" provide sustained high quality transmission for operators' transmitters. Telephone men like them because of their long life and constant voltage characteristics. They are guaranteed to supply 6,000 talking hours of peak transmission. Compact, neat, clean, they are very easy to handle. Eveready Air Cells can be had in two capacities; the 2.5 voltage capacity shown here and the smaller 1.25 voltage capacity. They are made by the makers of the famous "Eveready," "Columbia," "Gray Label" long life dry Cells.

"WT" GLASS INSULATORS BAFFLE SHARPSHOOTERS

Thanks to their low visibility, Whitall Tatum Glass Insulators are difficult targets for mischievous sharpshooters and rock throwers. The pure, colorless glass is achieved by precision processing of high quality ingredients. The Armstrong Cork Company manufactures all "WT's" to meet A.S.T.M. standards. They are actually stronger than standard steel supporting pins used in tests. They withstand temperature changes more severe than even the toughest service conditions can impose. When you specify "WT" Insulators, you're assured of top-notch, trouble-free performance.

NEALE CABLE SPINNERS GOOD FOR OLD-NEW CABLE

More and more phone men are using the Neale Cable Spinner to prevent ring cutting, bowing and damage to their cables due to whipping in sleet and high winds. They find it the cheapest and best method of suspending cable. With this marvelous device, one man, in a single operation, can spiral lashing wire evenly, with a steady 35 lb. tension from pole to pole. This spun cable positively will not move or vibrate, making a longer lasting, trouble-free installation. This method works efficiently on both existing cable and new construction. Write for catalog.

Coffing Safety Pull Hoists Cannot Slip or Drop Load

These handy hoists meet every pulling requirement. They are standard equipment with 86% of the power, light and telephone companies. They can be used for pulling guy wires, messengers, underground cables, pulling up poles, etc. Years of service have demonstrated their reliability, and many telephone men regard them as the lightest, most powerful and most economical hoists on the market. A reversible handle permits operating the hoist in any position. Capacities ¾ to 15 tons. Weights from 14 to 150 lbs.

Extra Services for Phone Men Are Part of Every Line Supply Order

In buying line supplies, whether it's a carload of poles or a handful of wiring nails, there are other important factors to consider besides the merchandise itself.

There's the matters of service, advice, speedy delivery, and the company behind the product—little extras like these which often are as valuable as the material involved.

Kellogg line supplies are made by hand picked, quality manufacturers. These manufacturers co-operate with Kellogg to the fullest extent in making supplies that telephone men can depend on — supplies that do *more* than is expected of them.

Kellogg service is famous in the industry. Over 50 well-stocked line material centers are maintained in order to give telephone men the prompt service they need in these busy times.

The experienced telephone men who handle the line supply orders are well able to offer constructive suggestions—helpful hints that may save time and money and extra work.

Every line supply item carries the famous Kellogg "Double Guarantee". This means that it is guaranteed not only by Kellogg, but by the manufacturer as well.

These *extras*, these things that go with every order, large or small, *are* important. So important, in fact, that more telephone men every year prefer to order their line supplies from Kellogg.